

NOTICE

All drawings located at the end of the document.



**Rocky Mountain
Remediation Services, L.L.C.**
... protecting the environment

Rocky Flats Environmental Technology Site
P.O. Box 464
Golden, Colorado 80402-0464
Phone: (303) 966-7000

March 4, 1999

Karan S. North, Division Manager
Environmental Systems and Stewardship
Kaiser-Hill Company, L.L.C.
Building T130C

**CLOSURE DESCRIPTION DOCUMENT FOR TANK AND ANCILLARY
EQUIPMENT SYSTEM #1 AND #2, REVISION 1 IN BUILDING 771 - TAH-015-
99**

The Closure Description Document (CDD) for Tank and Ancillary Equipment Systems #1 and #2 has been revised for consistency with the administrative requirements for subsequent closure description documents. The revised CDD is attached.

Revisions were made to Sections 1.0 and 3.0, including the purpose and scope of Phase I and Phase II activities, the major features of the Phase I and Phase II summary reports and clarification of the closure performance standards. Sections 4.0 through 8.0, which relate to piping removal activities in the field, and the figures remain unchanged.

Please transmit this revised Closure Description Document to CDPHE at your earliest convenience. A draft letter to CDPHE is attached for your use.

If you have questions, please contact me at 303-966-7652 or Tom Baker at 303-966-4329.

Ted A Hopkins

Ted A. Hopkins
Environmental Compliance Manager

TCB:dlu

Attachments (2):
As Stated

CORRES. CONTROL		
LTR. NO.		
K-H Corres. #		
99-RF-		
Originator Ltr Log #		
TAH-015-99		
DIST.	LTR	ENC
BODEY, E. D.		
CARMEAN, C.H.		
CRAWFORD, A.C.		
FINDLEY, M.E.		
FITZ, R.C.		
GUINN, L.A.		
HUGHES, F.P.		
KASEN, J. A.		
KORENKO, M. K.		
LAW, J. E.		
MILLS, S. H.		
OVERLID, T. W.		
PATTERSON, J.W.		
SUTTON, S. R.		
TRICE, K. D.		
WHEELER, M.		
WOLF, K. Z.	X	
WOLF, H. C.		
BAKERT	X	X
LANE	X	X
BURKS D	X	
HOPKINS T	X	
ADMIN RECORD		
RMRS RECORDS	X	X
TRAFFIC		
PATS/T130G		
CLASSIFICATION:		
UCNI		
UNCLASSIFIED	X	X
CONFIDENTIAL		
SECRET		
AUTHORIZED CLASSIFIER		
SIGNATURE:		
<i>Ted A Hopkins</i>		
Date:	3/4/99	
IN REPLY TO RF CC NO.:		
ACTION ITEM STATUS:		
q PARTIAL/OPEN		
q CLOSED		
LTR APPROVALS:		
ORIG. & TYPIST INITIALS:		
TCB:dlu		
RF-46469(Rev.1/99)		



ADMIN RECORD

IA-B771-A-00025

Y20

DRAFT

DRAFT

DRAFT

99-RF-XXXXX
DOE # xxxxx

Mr. Joe Scheiffelin, Unit Leader
Colorado Department of Public Health and the Environment
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

CLOSURE DESCRIPTION DOCUMENT FOR TANK AND ANCILLARY EQUIPMENT SYSTEM
#1 AND #2, REVISION 1 IN BUILDING 771 - KSN-XXX-99

Dear Mr. Scheiffelin:

The Closure Description Document (CDD) for Tank and Ancillary Equipment Systems #1 and #2 has been revised for consistency with the administrative requirements for subsequent closure description documents. The revised CDD is attached.

Revisions were made to Sections 1.0 and 3.0, including the purpose and scope of Phase I and Phase II activities, the major features of the Phase I and Phase II summary reports and clarification of the closure performance standards. Sections 4.0 through 8.0, which relate to piping removal activities in the field, remain unchanged.

If you have any questions, please contact Tom Baker of Rocky Mountain Remediation Services at 303-966-4329 or David Grosek of DOE, RFFO at 303-966-3305.

Karan S. North, Division Manager Date
Compliance and Performance Assurance
Kaiser-Hill Company, L.L.C.

Joseph A. Legare, Asst. Manager Date
For Environment and Infrastructure
U.S. Department of Energy

cc:

C. Gilbreath	-	CDPHE
D. Grosek	-	DOE, RFFO
T.C. Baker	-	RMRS
R.L. Cathel	-	RMRS
T. A. Hopkins	-	RMRS
R.M. Leitner	-	Savant Enterprises
N. C.T. Van Tyne	-	ICF Kaiser

Closure Description Document for

RCRA Closure of Tank and Ancillary Equipment Systems

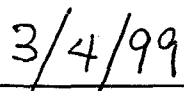
#1 and #2 in Building 771, Revision 1

U.S. Department of Energy
Rocky Flats Environmental Technology Site
EPA ID No. CO7890010526

Reviewed and Approved by:



T.C. Baker, Environmental Compliance, RMRS

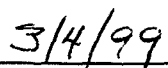


Date

Prepared by:



N.C.T. Van Tyne, Project Manager II, ICF Kaiser



Date

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	Purpose and Scope	1
1.2	Unit Closure Notification and Schedule.....	1
1.3	Facility Contacts.....	2
2.0	BUILDING 771 FACILITY DESCRIPTION	3
3.0	METHOD OF CLOSURE AND PERFORMANCE STANDARD.....	3
4.0	SYSTEM DESCRIPTION AND WASTE CHARACTERIZATION.....	4
5.0	SPECIFIC CLOSURE ACTIVITIES	4
5.1	Establishment of Tank System Boundaries and Scope of Removal	5
5.2	Preparation of Engineering and IWCP Work Packages (Phases I and II).....	5
5.3	General Methodology for Piping Removal	6
6.0	SAMPLING AND ANALYSIS	8
6.1	Sampling Methods.....	8
6.2	Analytical Methods and Location	8
6.3	Quality Assurance	8
7.0	DISPOSITION OF CLOSURE-RELATED WASTES.....	8
8.0	SOIL CONTAMINATION AND POST-CLOSURE CARE.....	9
9.0	RECORDKEEPING.....	9
10.0	AMENDMENT OF THE CLOSURE DESCRIPTION DOCUMENT	10
11.0	REFERENCES.....	10
12.0	FIGURES	11
	Figure 12-1 –Rocky Flats Site Map, Showing the Location of Building 771	11
	Figure 12-2 – System Description and Boundaries for System #1.....	12
	Figure 12-3 – Tank and Ancillary Equipment System #1	13
	Figure 12-4 – Oxalic Acid Termination Dets.....	14
	Figure 12-5 – System Description and Boundaries for System #2.....	15
	Figure 12-6 – Tank and Ancillary Equipment System #2.....	16

1.0 INTRODUCTION

1.1 Purpose and Scope

The Rocky Flats Environmental Technology Site's (RFETS) RCRA Closure Plan for Interim Status Units (Closure Plan) includes the Mixed Residue tank systems and the Idle Equipment tanks in Building 771. Decommissioning and removal of tanks and their ancillary piping and other equipment are subject to the Closure Plan and a subsequent Closure Description Document, which contains a description of the method of closure to be used. A two-step strategy will be employed: (1) wherever possible, meet the requirements for the "RCRA Stable" condition while the tanks remain in place, and (2) remove the tanks from the building at a later date.

The process piping in Building 771 has been divided into thirty-eight discrete "piping systems," with tanks and other ancillary equipment included. Thirty-five of these systems contain process piping connected to RCRA-regulated tanks. In order to prepare for building deactivation and to facilitate closure activities, each tank will be isolated by removing process piping connected to it. Some tanks are connected to more than one process piping system. Once a tank has been isolated from **all** process piping systems to which it has been connected, it will be reported in the closure documentation as "RCRA Stable" if the requirements for the "RCRA Stable" condition, as described in the Closure Plan, have been met.

This Closure Description Document is for Tank and Ancillary Equipment Systems #1 and #2 in Building 771, also known as Tap and Drain Solution Systems #1 and #2. It applies to the closure of the tanks associated with these systems. Closure of the tanks will be accomplished in two separate phases:

- a. Phase I: Removal of ancillary process piping connected to these tanks, thereby physically isolating each tank and its associated ancillary equipment. The tanks will meet the basic requirements for the "RCRA Stable" condition by being isolated as well as empty;
- b. Phase II: Completion of RCRA closure of the tanks by removal of each isolated, "RCRA Stable" tank, along with any remaining ancillary piping or isolated ancillary equipment.

1.2 Unit Closure Notification and Schedule

The Colorado Department of Public Health and Environment (CDPHE), Hazardous Materials and Waste Management Division, will be notified at least 45 days prior to the start of Phase I or Phase II closure activities, as required by 6 CCR 1007-3, Part 265.112 and by Section B (3) of the Closure Plan. Identified

closure activities will be conducted immediately after the 45-day notification period, and are expected to be completed within 180 days. If closure activities cannot be completed within 180 days, a request for extension will be submitted to the Division at least 30 days prior to the end of the 180 days, as required by 6 CCR 1007-3, Section 265.113.

Phase I activities for all systems are expected to be scheduled during the August 24, 1998 to December 30, 2001 time period. Phase II activities will be scheduled through the Rocky Flats Cleanup Agreement (RFCA) annual budget planning and Integrated Sitewide Baseline (ISB) process.

Within 30 days after completion of Phase I or Phase II closure activities, a report will be submitted to CDPHE briefly summarizing the closure activities conducted in accordance with this Closure Description Document. The Phase I summary report shall contain the following:

- a declaration that the piping described in the submitted drawings has been removed as planned;
- descriptions of any significant deviations from this Closure Description Document;
- a copy of any newly-generated drawings;
- a statement as to whether the tanks involved have met the requirements of the "RCRA Stable" condition; and
- a summary of relevant analytical results.

The summary report for Phase II activities shall contain the following:

- details about the removal of "RCRA Stable" tanks from Building 771; and
- for mixed residue tanks with RCRA unit numbers, a statement that the unit is now clean closed.

1.3 Facility Contacts

The contacts for closure activities at RFETS are:

Assistant Manager
For Environment and Infrastructure
Rocky Flats Field Office
U.S. Department of Energy
P.O. Box 928
Golden, CO 80402-0928
(303) 966-4298

Division Manager
Environmental Systems
and Stewardship
Kaiser-Hill Company, L.L.C.
P.O. Box 464
Golden, CO 80402-0464
(303) 966-9876

2.0 BUILDING 771 FACILITY DESCRIPTION

Building 771 is a two-story, reinforced concrete structure, which is partially buried in a hillside located in the north central portion of the site. Since completion of the original building in 1953, several additions have been constructed, including offices, a cafeteria, maintenance shop, loading dock, and the Annex for drum storage.

Operations commenced in Building 771 in 1953. Five major types of production-related activities were conducted: Plutonium Recovery, Plutonium Special Recovery, Plutonium Chemistry, Plutonium Metallurgy Research and the Analytical Laboratory. These operations dealt with the recovery of plutonium from "residue" materials which were generated during fabrication, assembly and research operations in the Site's six production buildings, as well as with development of methods for recovery, purification and further processing of plutonium. The Analytical Laboratory provided analytical support to Building 771 and other site operations.

All operations, except for routine surveillances, maintenance and waste management were curtailed in 1989. At the present time, the current mission of Building 771 consists of two major activities:

- a. Storage of nuclear and hazardous materials in preparation for onsite consolidation and/or offsite shipment.
- b. Stabilization of plutonium solutions and other deactivation activities in preparation for decontamination and decommissioning (D&D).

The waste storage areas and tank units are used to store special nuclear materials, radioactive and mixed wastes, and residues, all of which were generated in Building 771 and in other buildings on the site.

3.0 METHOD OF CLOSURE AND PERFORMANCE STANDARD

The tank units described herein will be closed by the method described as "Unit Removal" in the Closure Plan for Interim Status Units, Section E, while incorporating the intermediate stage of "RCRA Stable", as described in Section F of the Closure Plan. All liquids will be drained from these tank systems, to the extent practicable, prior to the start of closure activities.

The Phase I performance standard for "RCRA Stable" shall be as follows:

-
- a. The tanks are empty, i.e., they have been drained to the maximum extent possible using readily available means.
 - b. The piping sections shown in Figures 1-3 have been removed.
 - c. Outlets from the tanks, except for the vent line, have been blind flanged.

The Phase II performance standard is removal of the "RCRA Stable" tanks and any remaining ancillary equipment from Building 771.

4.0 UNIT DESCRIPTION AND WASTE CHARACTERIZATION

Piping system #1 originates in Room 247 on the second floor of Building 771, and terminates in Room 114 on the first floor. This system was part of the Chemical Make-Up stage of the recovery processes, and supplied 1.0 N oxalic acid from tanks T-35 and T-36. Both T-35 and T-36 are cylindrical, with dimensions of 24 inches in diameter by 36 inches high, with estimated volumes of 190 liters for each tank. These tanks are currently empty. During Phase I activities, approximately 230 feet of piping and nine valves will be removed.

Piping system #2 also originates in Room 247, and terminates in Room 146 on the first floor. This system, also a part of Chemical Make-Up, supplied 5.8 N nitric acid with 0.1 M ferrous sulfamate from Tank T-44. This tank is also cylindrical, with dimensions of 30 inches in diameter by 34 inches high, with an estimated volume of 400 liters. This tank is also currently empty. During Phase I activities, approximately 140 feet of piping and seven valves will be removed.

Through process knowledge and analytical data gained from the characterization of the liquids already drained from these piping systems, EPA waste code D002 (corrosivity) is assigned to both systems. Internal radioactive contamination is not expected in either system. In addition, tanks T-35, T-36 and T-44 are currently included in the Idle Equipment Inventory.

5.0 SPECIFIC CLOSURE ACTIVITIES

Closure activities will be performed in a manner to achieve the objectives of the closure performance standard, and will include protection of human health and the environment as well as waste minimization. Specific work instructions, with engineering, health and safety, and waste management information will be developed prior to the start of identified Phase I or Phase II closure activities. These instructions will be developed in accordance with appropriate RFETS policies and procedures.

Closure activities are summarized as follows:

5.1 Establishment of Tank System Boundaries and Scope of Removal for Phases I and II

The boundaries for Systems #1 and #2, as described in Figures 12-3 through 12-6 define the extent of closure activities for this closure description document. The boundaries are at flanged joints where possible, allowing blinds to be installed on the remaining piping, affording positive protection of the room environment from contaminants contained in the remaining systems.

During Phase I closure activities, all overhead piping between the joints nearest the tank outlets in Room 247 and those nearest the points of entry into the gloveboxes, as indicated in Figures 12-3 through 12-6 will be removed, and the remaining piping capped as described above. The tanks themselves and all remaining ancillary piping and equipment (e.g., pumps, heat exchangers, actuators) will be removed during Phase II closure activities. The removal of tanks T-35, T-36 and T-44 is currently scheduled for the February, 2006 time frame.

Piping located inside gloveboxes will be removed when the glovebox is disassembled, in order to minimize both work exposures and cost. At that time, a hazardous waste determination will be made on this piping, and it will be managed and disposed per requirements associated with that determination.

5.2 Preparation of Engineering and IWCP Work Packages (Phases I and II)

Unit-specific Integrated Work Control Program (IWCP) and engineering work packages will be prepared for each system, to govern closure activities under Phases I and II. The RFETS Health and Safety Practices Manual defines the general health and safety measures to be followed at the Site; all closure activities will be conducted in accordance with this manual, as well as with the results of industrial and nuclear safety-related evaluations and screens.

The IWCP work package will be used to control all work. This package includes, but is not necessarily limited to, preparation of equipment, specification of personal protective equipment (PPE), methods of disassembly and size reduction, methods for containment of liquids and prevention of releases to the environment, and proper packaging of the

waste. The engineering design modification package serves as a reference for the technical work instructions in the IWCP work package.

5.3 General Methodology for Piping Removal during Phase I

Prior to starting Phase I activities, System #8 will be drained by tapping into low points and applying vacuum at each point until no additional liquid can be removed. The system should then be free of liquids. However, it remains possible that residual liquids may be encountered during piping removal. The removal method employed will include provisions to contain residual liquids and/or sludges. Any resulting liquids or sludges will be characterized and treated for final disposal per waste acceptance criteria.

Solid blockages are not expected in this system. If a blockage is encountered that cannot be cleared readily during the tap and drain process, additional taps may be installed to minimize the length of the blocked section. Blocked sections will be removed with provisions to contain trapped liquids that may be present. These sections will be size reduced in a manner that accommodates the possibility that trapped liquids may be released to containment. A drainage path will be established through any remaining blockages to ensure that all liquid can be drained from the pipe. If significant blockages are encountered during tap and drain activities, piping removal may be conducted in conjunction with those activities.

Piping removal, size reduction and packaging activities are considered to be dynamic processes, in which improvements in technology will be implemented as a result of newly available methods or lessons learned from prior piping removal operations. The piping removal steps described below may be modified in response to actual operating conditions. Possible modifications include the manner in which the pipe sections are separated, the type of containment used as a pipe section is removed, and the type of containment used for size reduction (e.g., a hardwall glovebox, a glovebag, a containment house, or an open drum with a catch pan and air mover).

In the majority of cases, piping will be removed in the following manner:

- a. Flanges will be disconnected and removal will proceed toward a vacuum source if possible.
- b. The piping will be cut using a four-wheel cutter or Sawz-All™.

-
- c. If any residual liquid or sludge is observed at either end of the removed pipe section, that section will be immediately placed in the size reduction containment, to be size reduced and inspected. The recovered residual liquid and/or sludge will be collected, then stored in an approved RCRA storage area.
 - d. If no residual liquid or sludge is observed at either end of the pipe section, it will be brought to the size reduction area at an appropriate time.
 - e. Piping sections will be size reduced, as necessary, using an approved cutting method.
 - f. Pipe sections will be allowed to drain, in a vertical position, if required.
 - g. Pipe sections will be inspected visually to estimate the amount of residual solid material within the section, and to determine whether a blockage is present within the section.
 - h. Blockages in pipe sections will be penetrated by mechanical means to drain any trapped liquid.
 - i. Pipe sections will be drained of any remaining liquids or sludges, then placed into waste containers. Residual materials will be sampled and immobilized.

The contents and condition of the interior of the pipe section will dictate its disposition as waste. Three cases may be encountered:

- The interior surface is dry and contains no visible sign of hazardous waste holdup, so that the pipe section can be disposed as non-hazardous waste. This case is expected for all piping in System #8.
- The pipe section contains solid residual material adhering to the interior walls, which cannot be removed readily. The pipe section will be managed as hazardous or non-hazardous waste, based on analytical results for a representative sample of the material.
- A removable blockage or mobile sludge is found, and is removed from the pipe section and sampled. EPA codes are assigned to the sludge based on process knowledge or analytical results, and the sludge is treated to meet applicable waste acceptance criteria. The pipe section will be disposed as hazardous or non-hazardous waste, after a hazardous waste determination has been made.

Each IWCP work package, which will be prepared prior to the start of closure activities, will include more specific and detailed instructions for the sequence of piping removal steps, removal and size reduction methodology, and removal of residual materials from pipe sections.

6.0 SAMPLING AND ANALYSIS

Sampling and analysis are important to both Phase I and Phase II closure activities for proper waste characterization. Sampling and analytical methods, and quality assurance standards, are addressed in this section.

6.1 Sampling Methods

Methods used to collect samples are authorized through citation in 6 CCR 1007-3, Part 261, Appendix I, as well as the Sampling and Analysis Plan for Building 771 Tank Stabilization Project, 1-10000-EWQA-1.6.1, Addendum 13, Rev. 2. Specific methods are selected on the basis of ease with which representative samples can be collected, sampling location, sampling matrix, sample container type and size, and accessibility, as well as to maximize the value of data and minimize the number of samples needed.

Sampling is performed using the procedure entitled, Solution Bottle Handling Building 771, PRO-D02-CO-1131. The solution is mixed while in a bottle to assure homogeneity prior to sampling.

6.2 Analytical Methods and Location

Analytical work will be performed in an RFETS-approved laboratory. The analytical test methods for waste characterization are consistent with the approved methods in the Site RCRA Part B Permit, Part VI, Waste Analysis Plan.

6.3 Quality Assurance

The applicable RFETS Field Operating Procedure, 5-21-000-OPS-FO, or equivalent procedure(s), will be used to ensure the integrity of representative samples and analytical data.

7.0 DISPOSITION OF CLOSURE-RELATED WASTES

Metal, combustible and liquid wastes may be generated during either Phase I or Phase II closure activities. It is assumed that the Site waste management and treatment systems will be available to receive wastes generated by these closure activities.

All metal waste will be packaged to meet the requirements of the Waste Isolation Pilot Plant (WIPP) and/or other applicable Waste Acceptance Criteria (WAC). It

is expected that the majority of residual liquid and sludge materials can be separated from the metal surfaces, rendering the metal as transuranic (TRU) or low-level waste (LLW), and therefore as non-hazardous. If a liquid or sludge has solidified on the metal surface and cannot be removed, the metal will be managed as mixed waste, and will be managed and disposed appropriately.

Wipes and other combustible materials which are used to clean surfaces or to immobilize free liquids will be placed into waste drums and managed as hazardous waste. This waste will be characterized in accordance with 6 CCR 1007-3, Part 261 and managed appropriately. Other combustible wastes, including PPE and plastic containment void of any hazardous constituents, will be managed as non-hazardous waste. All waste drums will also be analyzed by non-destructive assay (NDA) to categorize them as TRU or low-level waste, and will be stored in an appropriate onsite storage area prior to offsite disposal.

The only liquids expected to be generated during Phase I or Phase II closure activities will originate as residual liquid holdup in the equipment. Liquid inventory in the tanks or ancillary equipment, except for incidental amounts that may be absorbed onto wipes, will be drained into bottles and sampled. The bottles will be placed into drums, and will be managed as mixed waste pending final characterization in accordance with 6 CCR 1007-3, Part 261, along with radionuclide analysis.

8.0 SOIL CONTAMINATION EVALUATION AND POST CLOSURE CARE

The operating history for these tank systems (e.g., building logs, RCRA inspection logs and occurrence reports) indicates that there have been no spills or releases to the environment as a result of waste management activities in these units. In addition, Phase I and Phase II closure activities associated with these tank systems are not expected to impact the soils surrounding Buildings 771. Therefore, soil contamination will be evaluated as part of decommissioning and cleanup activities for the Building 771 complex under RFCA, and post-closure care activities are not necessary as part of the closure of these tank systems.

9.0 RECORDKEEPING

The following closure records will be maintained onsite during closure activities, and at a federal repository for a minimum of 30 years following the completion of closure activities:

- sampling logs, including type, numbers and date of samples;

-
- analytical results;
 - records of actions taken to decontaminate equipment and/or structures;
 - work instructions used to conduct closure activities;
 - closure report for Phase I activities; and
 - documentation verifying that closure activities were conducted in accordance with the approved Closure Plan and with this Closure Description Document, following completion of Phase II activities.

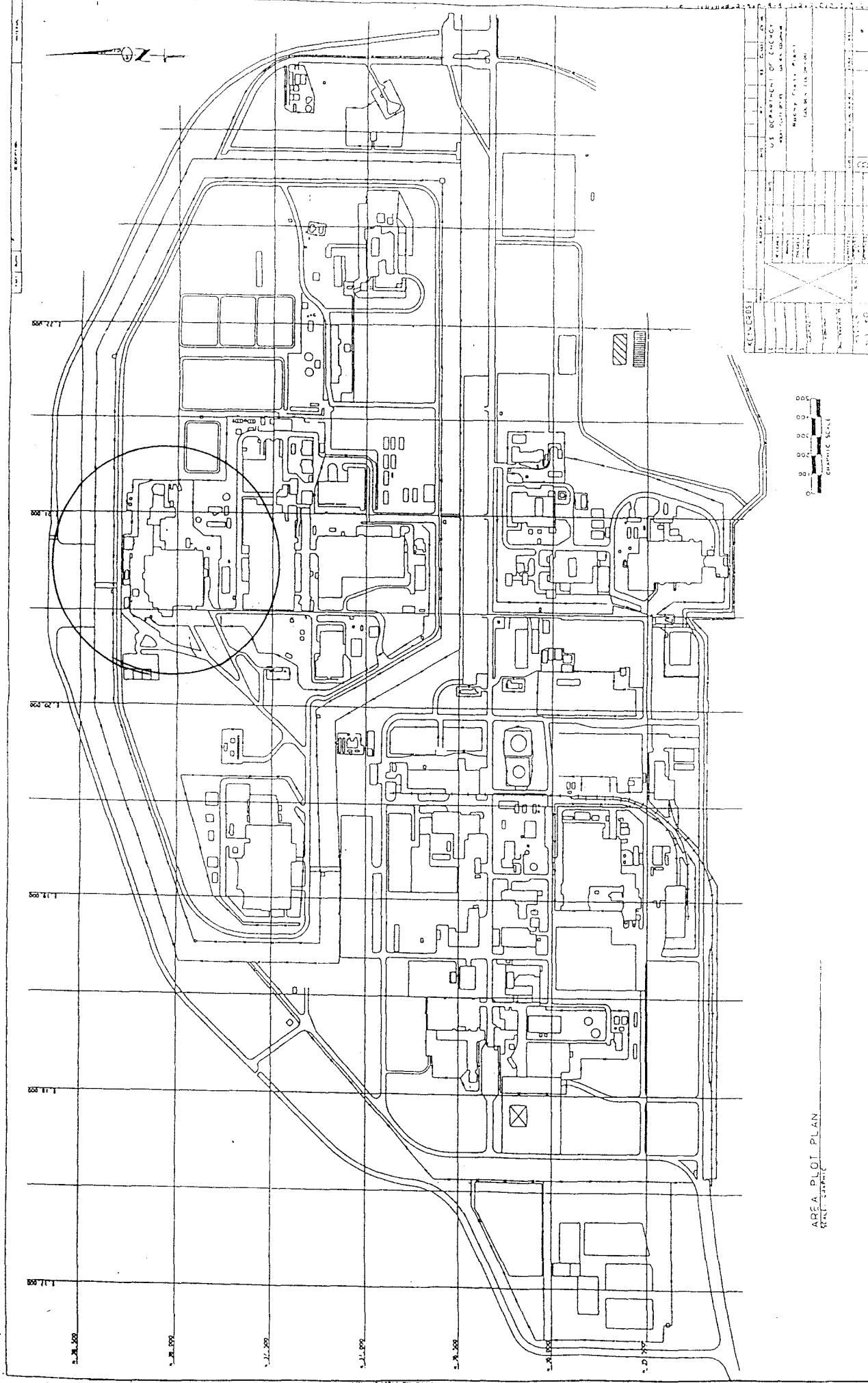
10.0 AMENDMENT OF THE CLOSURE DESCRIPTION DOCUMENT

In conducting Phase I or Phase II closure activities, unexpected events that are identified during the implementation of closure activities may require an amendment to this Closure Description Document. Modifications to this Closure Description Document will be made in accordance with applicable regulations.

During the planning and development stage of Phase II closure activities, additional drawings that are developed for the removal of tanks and remaining ancillary equipment will be submitted as an addendum to this Closure Description Document. At that time, this Closure Description Document may be augmented or superseded by an approved Building 771 Decommissioning Operations Plan (DOP).

11.0 REFERENCES

1. Code of Colorado Regulations, Vol. 6, No. 1007-3, Part 265, Subpart G, Sections 265.110 through 265.120.
2. Rocky Flats Environmental Technology Site RCRA Permit, Part X: Closure Plan, effective 5/10/98.
3. Rocky Flats Environmental Technology Site Closure Plan for Interim Status Units, effective 7/98.
4. Rocky Flats Environmental Technology Site 1997 Hazardous Waste Tank Systems Management Plan, effective 2/13/98.
5. Backlog Waste Reassessment Baseline Book, an RFETS Level 1 Manual, effective 2/17/98.
6. Building 771 Basis for Operation (BFO), 98-RF-00947, effective 2/27/98.



Best Available Copy

Figure 12-1: Rocky Flats Site Map, Showing the Location of Building 771

SYSTEM DESCRIPTIONS AND BOUNDARIES

SYSTEM NUMBER	SYSTEM NAME	ENGINEER	REVISION DATE
1	1.0 OXALIC ACID	GREG VINCENT	7/06/98

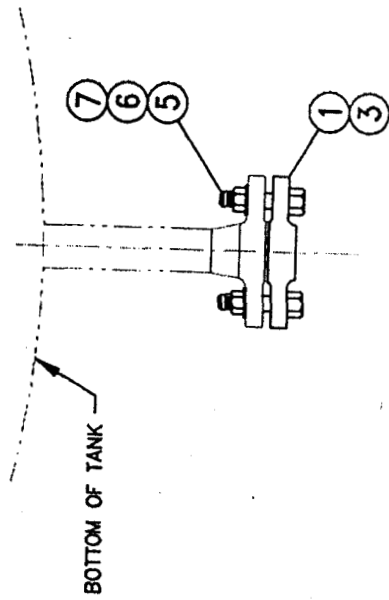
A. START POINT	Tank 35, Room 247 (Chemical Make-up)
B. END POINT	North end of Line 1, Room 114
C. CHEMICAL COMPOSITION	1.0N Oxalic Acid
D. RAD/ACTINIDE CONTAMINATION	$< 10^{-3}$ g/l Pu/U, Sample analysis attached
E. ESTIMATED SYSTEM MAX VOLUME	30 Liters, based upon the "Hold-up Study"
F. TANKS INVOLVED	T-35 & T-36
G. GLOVEBOXES INVOLVED	North Section of Line 1
H. OTHER COMPONENTS	None
I. SYSTEM INTERFACES	Process Water, Hydrochloric Acid, Potassium Hydroxide, Nitric Acid
J. CHEMICAL COMPATIBILITY AT INTERFACE(S)	Nitric Acid. See attachments, Causal Mechanisms for Generation of Gaseous Products in the Oxalic Acid System, EA-771-005, Rev. 0, dated 3/10/98, from Boyd, Colwell, Kobi, and Peppers; and Transmittal of Hydrogen Discovery Issue USQD Analysis and Page Changes to Bldg. 771 Basis for Operation (BFO), 98-RF-00947, dated 2/27/98, from R. F. Bacon to Gary M. Voorheis.
K. NARRATIVE DESCRIPTION	Oxalic Acid was used as a precipitating reagent in the Americium Recovery process. Oxalic Acid was batched in Tank 35, and transferred by pump to distribution Tank 36, both located in Chemical Make-up, Room 247. The oxalic acid piping system consists of a single piping header with five (5) service drops above Line 1 Glovebox located in Room 114. Oxalic acid piping exits Tank 36 in Room 247, through the floor into Room 149, and continues to Line 1, located in Room 114.
L. PIPING REMOVAL DESCRIPTION	Attach vacuum/liquid collection system to DP-6 in Line 1. Remove the piping between tanks T-35 and T-36 and install blind flanges. Remove drain line piping from Tank T-36 to Line 1. Lengths of pipe should be removed in sections that will fit in drums after removal. If vacuum can not be maintained due to plugged pipe, measures should be taken to continue piping removal with the appropriate PPE, and liquid collection containers. The vacuum system may require relocation in order to establish negative from a different location. Install blind flanges at the top of Line 1. Piping within Line 1 is minimal, and does not require removal at this time.

Figure 12-5: SYSTEM DESCRIPTIONS AND BOUNDARIES

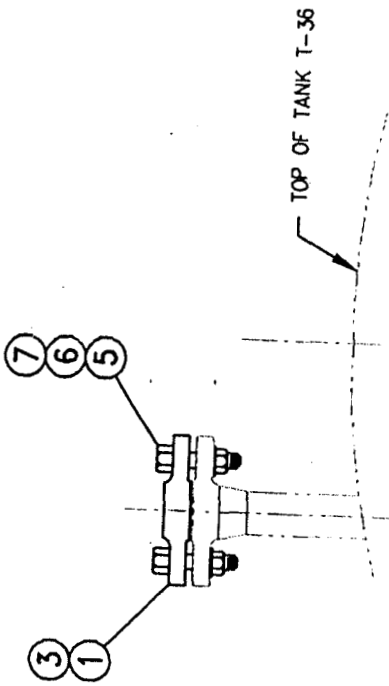
SYSTEM NUMBER	SYSTEM NAME	ENGINEER	REVISION DATE
2	5.8N NITRIC ACID/0.1M FeSA	GREG VINCENT	7/06/98

A. START POINT	Room 247
B. END POINT	Room 146, MT-4
C. CHEMICAL COMPOSITION	5.8. N Nitric Acid/0.1M FeSA
D. RAD/ACTINIDE CONTAMINATION	< 10 ⁻³ g/l Pu/U
E. ESTIMATED SYSTEM MAX VOLUME	12 liters
F. TANKS INVOLVED	T-44
G. GLOVEBOXES INVOLVED	MT-4
H. OTHER COMPONENTS	None
I. SYSTEM INTERFACES	FeSA (Ferrous Sulfamate) Fe 2 (SO ₄) ³ House Vacuum & Ventilation
J. CHEMICAL COMPATIBILITY AT INTERFACE(S)	7N, HNO ₃ , 12N, HNO ₃ , .35 HNO ₃ , H ₂ O, Fe 2(SO ₄) ³
K. NARRATIVE DESCRIPTION	The 5.8N Nitric Acid/0.1M FeSA Solution System is a chemical make-up system which originates at T-44 in Room 247 (Chem Make-up). The 5.8N Nitric Acid/0.1M FeSA piping system consists of a single piping header which exists Room 247 through the southwest pipe chase and drops into Room 146. The piping then runs across Room 146 to Line MT-4 located at the East wall with one (1) drop on the top of Line MT-4 Glovebox.
L. PIPING REMOVAL DESCRIPTION	Attach vacuum/liquid collection system to DP-1 in Glovebox MT-4. Remove the piping from the drain line of Tank T-44 and install a blind flange at the bottom of the tank. Remove lengths of pipe toward the vacuum source in MT-4 that will fit in drums after removal. Install a blind flange on the top of glovebox MT-4. If vacuum can not be maintained due to plugged pipe, measures should be taken to continue piping removal with the appropriate PPE, and liquid collection containers. There are no expected plugging within this piping. To isolate the .35N and 7N HNO ₃ reagent lines from the 5.8N HNO ₃ , and reduce the number of steps during 35N and 7N HNO ₃ Vent/Purge, it is recommended that the piping inside Glovebox MT-4 be removed up to HV-3276 and Hv-3291.

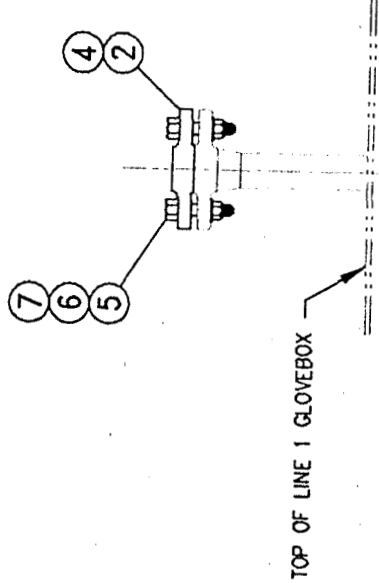
Figure 12-4: Oxalic Acid Termination Dets



1
DETAIL
SCALE: NONE



2
DETAIL
SCALE: NONE



3
DETAIL
SCALE: NONE

NOTES:

1. DETAIL "1" IS TYPICAL FOR TERMINATION POINTS TP-1 AND TP-3. SEE SK-T0097251-01 FOR TERMINATION POINT LOCATIONS.
2. DETAIL "3" IS TYPICAL FOR TERMINATION POINTS TP-4, TP-5 AND TP-6. SEE SK-T0097251-01 FOR TERMINATION POINT LOCATIONS.

APPROVED FOR USE
T0097251

INFORMATION

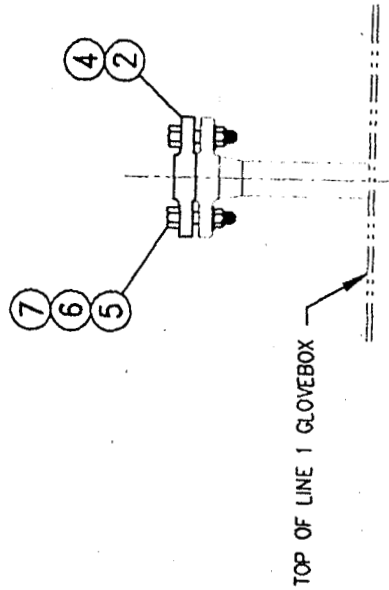
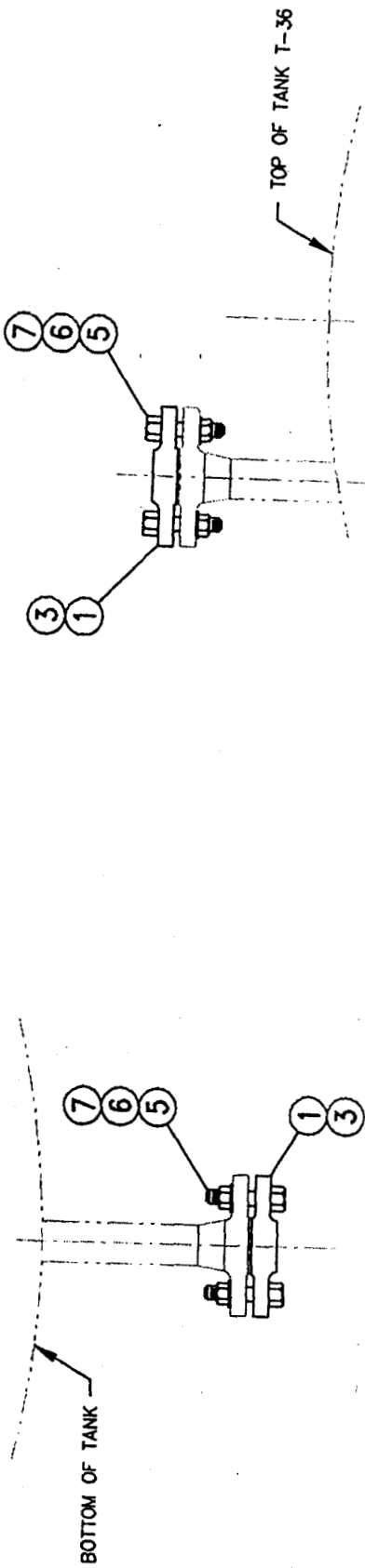
SIGNATURE _____ DATE _____

PART	QTY	DESCRIPTION	MATERIAL
1	3	FLANGE, 3/4", BLIND, RF, CLASS 150, ASTM A182 GR F 304L	304L SST
2	3	FLANGE, 1/2", BLIND, RF, CLASS 150, ASTM A182 GR F 304L	304L SST
3	3	GASKET, 3/4" PIPE DIA, 1/8" THK, STYLE 3510, 150#	CARLOCK GYLON
4	3	GASKET, 1/2" PIPE DIA, 1/8" THK, STYLE 3510, 150#	CARLOCK GYLON
5	24	BOLT, 1/2"-13 UNC-2A X 2 3/4" LG, ASTM A193, GRADE B2, CLASS 2	SST
6	24	NUT, HEAVY HEX, 1/2"-13 UNC-2B, ASTM A194, GRADE 8	SST
7	24	WASHER, 1/2", TYPE B, NARROW SERIES, ANSI B 18.22.1	304 SST

DRAWN VINCENT	DATE 6/30/98	U.S. DEPARTMENT OF ENERGY
CHECKED	DATE	ROCKY FLATS AREA OFFICE
CLASSIFIED		GOLDEN, COLORADO
BLDG/FACILITY 771		ROCKY FLATS PLANT
ROOM/AREA 247, 143 & 114		GOLDEN, COLORADO
GRID COORD/COL NO.		LIQUIDS REMOVAL
SCALE NONE		OXALIC ACID TERMINATION DETS
CAD FILE RipTPs		DRAWING NUMBER
		SHEET
		OF

B SK-T0097251-02

Figure 12-4: Oxalic Acid Termination Dets



PART	QTY	DESCRIPTION	MATERIAL
1	3	FLANGE, 3/4", BUND, RF, CLASS 150, ASTM A182 GR F 304L	304L SST
2	3	FLANGE, 1/2", BUND, RF, CLASS 150, ASTM A182 GR F 304L	304L SST
3	3	GASKET, 3/4" PIPE DIA, 1/8" THK, STYLE 3510, 150# RING TYPE W/ TAB, GARLOCK INC	GARLOCK GYLON
4	3	GASKET, 1/2" PIPE DIA, 1/8" THK, STYLE 3510, 150# RING TYPE W/ TAB, GARLOCK INC	GARLOCK GYLON
5	24	BOLT, 1/2"-13 UNC-2A X 2 3/4" LG ASTM A193, GRADE B2, CLASS 2	SST
6	24	NUT, HEAVY HEX, 1/2"-13 UNC-2B ASTM A194, GRADE 8	SST
7	24	WASHER, 1/2" TYPE B, NARROW SERIES ANSI B 18.22.1	304 SST

NOTES:

- 1
DETAIL "1" IS TYPICAL FOR TERMINATION POINTS TP-1 AND TP-3. SEE SK-T0097251-01 FOR TERMINATION POINT LOCATIONS.
- 2
DETAIL "2" IS TYPICAL FOR TERMINATION POINTS TP-4, TP-5 AND TP-5. SEE SK-T0097251-01 FOR TERMINATION POINT LOCATIONS.

APPROVED FOR USE
T0097251

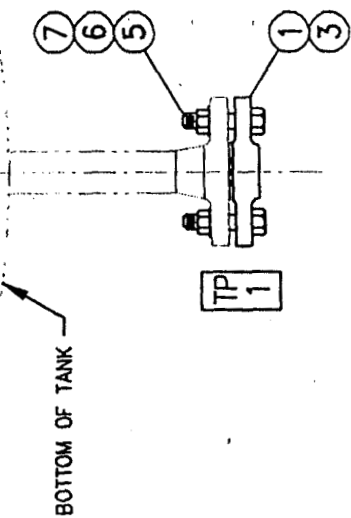
INFORMATION ON

SIGNATURE

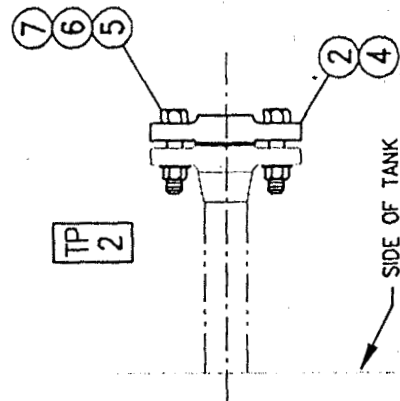
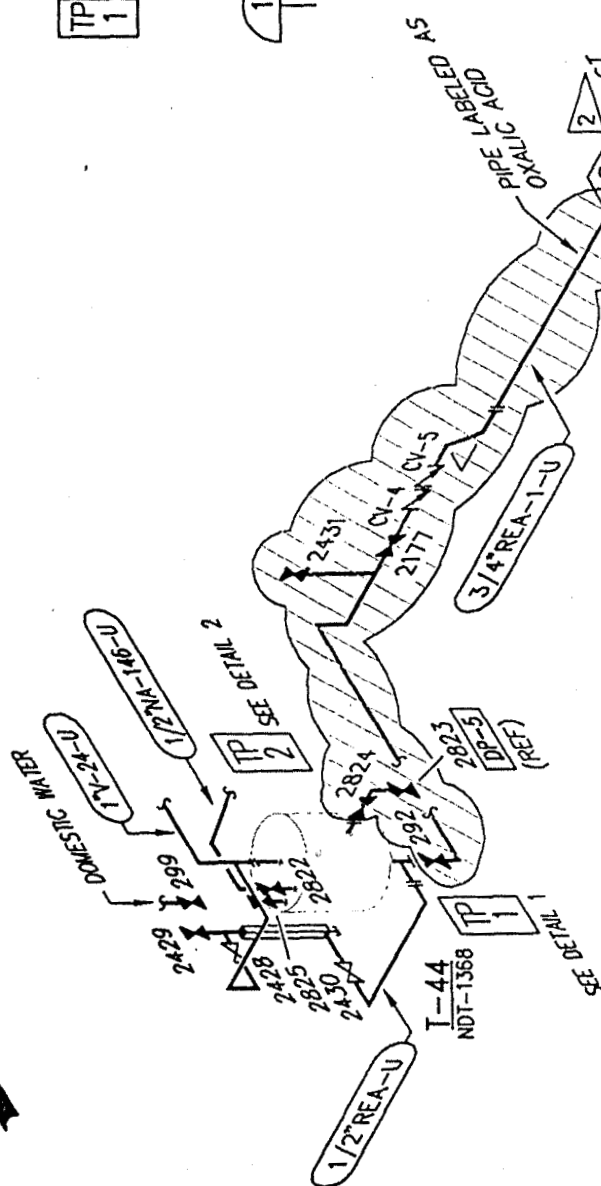
DATE _____

DATE	5/30/98	U.S. DEPARTMENT OF ENERGY	
CHECKED		ROCKY FLATS AREA OFFICE	
CLASSIFIED		GOLDEN, COLORADO	
BLDG./FACILITY		ROCKY FLATS PLANT	
ROOM/AREA	771	GOLDEN, COLORADO	
247, 143 & 114		LIQUIDS REMOVAL	
GRID COORD./COL NO.		OXALIC ACID TERMINATION DETS	
SCALE	NONE	SIZE	SHEET
CAD FILE	RipTPs	DRAWING NUMBER	OF
		B	SK-T0097251-02

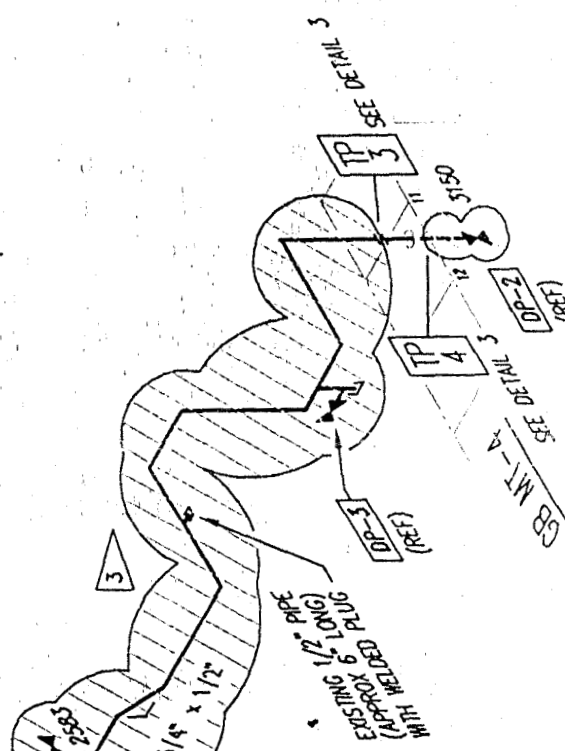
Figure 12-6: Tank and Ancillary Equipment System #2



1
DETAIL
SCALE: NONE



2
DETAIL
SCALE: NONE

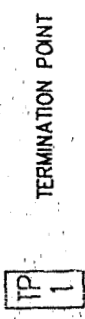


3
DETAIL
SCALE: NONE

NOTES:

1. ALL VALVE NUMBERS ARE PRECEDED WITH "HV" UNLESS OTHERWISE NOTED.
2. PATCH THE FLOOR PENETRATION PLATE WITH A FIBERGLASS REPAIR PATCH. USE McMASTER-CARR NO. 74645A77 OR EQUAL.
3. FIELD FABRICATE AND INSTALL TEMPORARY SUPPORTS AS REQUIRED WHERE PIPE TO PIPE OR PIPE TO CONDUIT SUPPORTS WERE REMOVED.

LEGEND



TERMINATION POINT

APPROVED FOR USE
T0097310

INFORMATION ONLY

SIGNATURE _____ DATE _____

PART	QTY	DESCRIPTION	MATERIAL
1	1	FLANGE, 3/4", BLIND, RF, CLASS 150, ASTM A182 GR F 304L	304L SST
2	2	FLANGE, 1/2", BLIND, RF, CLASS 150, ASTM A182 GR F 304L	304L SST
3	1	GASKET, 3/4" PIPE DIA, 1/8" THK, STYLE 3510, 150#	GARLOCK GYLON
4	2	GASKET, 1/2" PIPE DIA, 1/8" THK, STYLE 3510, 150#	GARLOCK GYLON
5	12	BOLT, 1/2"-13 UNC-2A X 2 3/4" LG	SST
6	12	NUT, HEAVY HEX, 1/2"-13 UNC-28	SST
7	12	WASHER, 1/2", TYPE B, NARROW SERIES	304 SST

DRAWN VINCENT	DATE 7/14/98	U.S. DEPARTMENT OF ENERGY
CHECKED	DATE	ROCKY FLATS AREA OFFICE
CLASSIFIED		GOLDEN, COLORADO
BLDG/FACILITY 771		ROCKY FLATS PLANT
ROOM/AREA 247 & 146		GOLDEN, COLORADO
GRID COORD/CO. NO.		LIQUIDS REMOVAL
SCALE NONE		5.8N/FeSA PIPING REMOVAL
CAD FILE 5.8N_R&S		SIZE B
		DRAWING NUMBER SK-T0097310-01
		SHEET OF